Program Manager Assembled Chemical Weapons Alternatives

Assembled Chemical Weapons Alternatives Program

A Partnership for Safe Chemical Weapons Destruction

Information

Background

Congress established the Assembled Chemical Weapons Assessment Program (ACWA) in 1997 to safely test and demonstrate at least two alternative technologies to the baseline incineration process for demilitarization of the nation's stockpile of assembled chemical weapons. Assembled chemical weapons are configured with fuses, explosives, propellant, chemical agents, shipping and firing tubes and packaging materials.

After successfully demonstrating three technologies in 1999 and three more in 2000, the ACWA program determined that four of them were viable for pilot testing:

- neutralization/biotreatment,
- neutralization/supercritical water oxidation,
- electrochemical oxidation with silver and nitric acid, and
- neutralization/transpiring wall supercritical water oxidation/gas phase chemical reduction.

Congress authorized ACWA to manage the development and pilot-scale testing of these technologies in 1999. In 2003, ACWA was assigned responsibility for full-scale pilot testing of neutralization technologies to destroy the chemical weapons stockpiles at the Pueblo Chemical Depot in Colorado and Blue Grass Army Depot in Kentucky.

This required the ACWA team to shift its focus from assessing chemical weapons disposal technologies to implementing full-scale pilot testing of alternative technologies at these sites. As a result, the program changed its name to Assembled Chemical Weapons Alternatives, to better reflect its new program goals.

Public Involvement

The ACWA program attributes its success in identifying safe and effective alternatives for chemical weapons destruction to a commitment to meaningful stakeholder input and involvement. Public involvement efforts began in 1997 when ACWA program leaders implemented an innovative, open and fully participatory public process called the ACWA Dialogue. The ACWA program continues to work closely with stakeholders by implementing community forums at each site to:

- share next steps with the community regarding chemical demilitarization,
- facilitate communication between ACWA and the community,
- assist the community in notifying ACWA of areas of interest, and
- determine mechanisms to allow the community and ACWA to work together effectively.

Pueblo Chemical Depot, Colorado

The Pueblo Chemical Depot stores approximately 8 percent of the nation's stockpile of chemical weapons. The ACWA program has worked together with the community to select a safe technology—neutralization/biotreatment—to destroy the chemical weapons stored there. In September 2002, Bechtel Pueblo was selected as the systems contractor to design, construct, operate and close the Pueblo Chemical Agent-Destruction Pilot Plant.

Here is how neutralization followed by biotreatment works:

- Hot water is used to neutralize the chemical agent, effectively destroying the chemical agent molecules. The resulting hydrolysate, or neutralized byproduct,

consists of mostly water and thiodiglycol, a common industrial chemical that is readily biodegradable.

- Ordinary sewage treatment bacteria, or microbes, consume the thiodiglycol in the hydrolysate. Besides being a common phenomenon in nature, the science of using microbes to help dispose of hazardous waste has existed for decades. Sewage treatment facilities across the country use microbes every day to help break down raw sewage.

Blue Grass Army Depot, Kentucky

Blue Grass Army Depot is located in east central Kentucky, southeast of the city of Richmond and approximately 30 miles southeast of the city of Lexington. The depot stores approximately 2 percent of the nation's chemical weapons. The ACWA program has worked together with the community in selecting neutralization/ supercritical water oxidation, known as SCWO, as the technology to destroy the chemical weapons stored there. A systems contractor will be selected to perform the work, including design, construction, operation and closure of the pilot-test facility.

Here is how neutralization followed by SCWO works:

- Munitions are disassembled by modified reverse assembly. Agent and energetics are separated. Agent and energetics are chemically decomposed and neutralized by caustic or water hydrolysis. The resulting chemical compounds are known as hydrolysates.
- The agent and energetic hydrolysates are destroyed using SCWO units. SCWO subjects the hydrolysate to very high temperatures and pressures, breaking them down into carbon dioxide, water and salts.
- Metal parts are thermally decontaminated by heating to 1000 degrees Fahrenheit for a minimum of 15 minutes.
- Solid effluents are recycled or tested prior to disposal in permitted landfills. Gas effluents are recycled or filtered before released to the atmosphere.

For More Information

The ACWA program's commitment to safe, effective alternatives for chemical weapons destruction, in addition to its support of public involvement, establishes the framework for a partnership for safe chemical weapons destruction.

For more information about the Assembled Chemical Weapons Alternatives, please call:

- Program Manager for Assembled Chemical Weapons Alternatives Public Affairs at 410-436-3398.

For information about chemical weapons disposal in Colorado, please call:

- Pueblo Chemical Depot Public Affairs at 719-549-4135, or visit the Pueblo Chemical Depot Community Outreach Office, 301 N. Main Street, Suite 306B, Pueblo, Colorado 81003, at 719-546-0400.

For information about chemical weapons disposal in Kentucky, please call:

- Blue Grass Army Depot Public Affairs at 859-625-6221, or call Blue Grass Chemical Activity Public Affairs at 859-625-6897. Also, you may visit the Blue Grass Chemical Stockpile Outreach Office, 370 Highland Park Drive, Suite 2, Richmond, Kentucky 40475, at 859-626-8944.